

### Abstract

The present invention provides an underlayer film-forming material for copper, a method for forming the underlayer, an underlayer film for copper, and a semiconductor device including a substrate, the underlayer and copper wiring film, which enable the prevention of copper diffusion as well as provide superior adhesion to a copper wiring film, even if the film is thinner than conventional barrier metals. The underlayer film-forming material for copper includes a compound represented by a following general formula [I]:  $(R_1R_2)P-(R)_n-Si(X_1X_2X_3)$ , wherein at least one of  $X_1$ ,  $X_2$ , and  $X_3$  represents a hydrolysable group; each of  $R_1$  and  $R_2$  represents an alkyl group;  $R$  represents a divalent linear organic group which is formed of an alkylene group, an aromatic ring, or an alkylene group including an aromatic ring; and  $n$  represents an integer of 1 to 6.